

VIDE

Scope

Many businesses have problems linking their business strategy and IT development plans because their business managers are experts in business processes and operations in the business domain and IT managers are experts in technical infrastructure and application development in the IT domain. That is, these two groups have very different backgrounds and perspectives and this means that reaching a shared understanding is often difficult. In addition, many IT managers, whilst having to cope with the demands of a fast changing business environment, have to increasingly deal with a backlog of application development projects, lack of funding and a lack of developers with up to date skills. These application developers find that there is very little guidance in terms of specification and often have little knowledge of the business processes they are being asked to create code to support. Finally, the majority of the code that the programmer creates has to be hand crafted because it is currently not possible to automate the movement happening in processes into meaningful code.

The Vide project is creating support for the myriad of users who have these issues. It has created a new high level approach allowing the business manager to take control of their own business processes by encouraging them to create informal models of them, creating a communication channel with business analysts and developers. The business analysts will formalise the models with the business managers before they are used by the IT professionals and programmers to create, (a high proportion automated) further design models before finally generating a greater majority of application code.

Advances

The vision of the Model Driven Architecture in the future is to allow the business manager or business analyst to be able to collect information about their business processes and to convert that information into a working software application that will support that process. To meet this vision will require a great deal of research, both now and in the future. However, the rewards to business in terms of modifiable and maintainable software that matches changing business processes and thus providing competitive advantage are immense. The Vide project is moving research forward by delivering a support environment for the Model Driven Architecture, a methodology for its use and is contributing to standards that will allow future work to use a common language. In addition, the Vide environment is demonstrating the integration of a variety of different both new and existing models, development platforms and industrial strength application development tools that will contribute to moving the MDA vision forwards:

- The integration of informal models and business process models and development of tool support for them
- The development of a model repository that holds the output of a variety of tools
- The development of tools that support both structural and behavioural textual and visual programming

- A visual query by example approach to defining constraints imposed on the program design
- Quality defect discovery for discovering potential quality problems with the created models.

Positioning in global context

Model Driven Architecture research has so far concentrated on the issues facing programmers and providing tool support for them. The aim of this work has been to introduce the concepts of the architecture and how it is applicable to the business level and to demonstrate how it can assist in the business and industrial markets by showing the benefits that can be achieved by increasing developer productivity and matching business and IT strategy. In addition it shows how agility in the business can be matched by agility in the application development process, allowing development of high quality applications that reflect business and user needs.

Contribution to standardization and interoperability issues

The partners PJIIT and Softeam are members of the Object Management Group (OMG), a well-recognized international industrial software standardization committee. In this context, the fact that Vide project is implementing novel solutions based on OMG proposals such as MDA, UML Action Semantics and the query language Object Constraint Language (OCL), will allow to provide the feedback to future development of these relatively new specifications. The PJIIT contribution to OMG standards also includes a proposal for a new 4th generation object-oriented database standard. The proposal meets a great interest from the side of OMG and is currently considered by parties involved in the process. Implementation of UML Action Semantics and OCL within the project has resulted in many recognized problems within OMG specifications and in several proposals of changing or extending corresponding standards. In particular, the proposals concern extending UML Action Semantics with database-originated features and making from OCL a fully-fledged query language. At the end of the project a thorough report concerning discovered problem and the proposals concerning changes in respective specifications (including UML and OCL) will be prepared. The report will be presented to the corresponding OMG sub-groups.

The Vide project assumes various interoperability components. In particular, a generic object-relational wrapper to the majority of relational database management systems is being implemented. The Vide software is also prepared to import XML files and to accept and compose Web Services.

Target users / sectors in business and society

The Vide approach will provide a toolset that can be used by a variety of different users in the language of their do-

main - from business users to programmers. The toolset will enhance their experience of the software development process and enable better communication.

For business users: improved support for the exploration of business tasks and an enabling mechanism for communication. For example, a business manager in any corporate environment can hold details of the process(es) for which they are responsible in the form of organisational charts and scraps of information. These can be linked together electronically and used to create informal models of the process.

For business consultants: enhancement of the analysis process and elicitation of requirements. The Vide informal models will allow the business analyst to have meaningful conversations with business managers in any company from banking and insurance to engineering or chemicals. From these conversations a formal business process model can be created and a much more informed set of requirements for an IT system that supports that business process

For IT professionals: improved communication with, and seamless integration between, the business and computing world. The divide between business and IT managers in enterprises, each expert in their own domain, is a common problem. By taking, for example, a stock control process in an enterprise and modelling it using Vide. It allows for part translation of this process model into an IT model and thus commences a dialogue between the two domains.

For programmers: increased requirements traceability and enhancement of the programming process. In both enterprises and SME's programmer productivity can be enhanced when they have more knowledge of the business processes they are supporting.

For software companies: rapid and more economic creation of quality software with improved alignment to the needs of the organization.

Overall benefits for business and society

In today's business environment, the agility of a business is a fundamental requirement, thus giving it competitive advantage. A business that has an agile business strategy and a related agile IT infrastructure which reflects that business strategy will reap the benefits in terms of increased customer base and increased turnover. The Model Driven Architecture in general has promised these things, but there have been no integrated approaches that could deliver this promise. Vide will show how a business can reap these benefits and how in addition, increased developer productivity will add to these benefits.

Examples of use

We envisage that specific components, and the integrated toolset will have applications across all sectors where business strategy and IT support need to be working together. This could be particularly useful in larger enterprise. One particular example we could use is in the Sales environment where we are investigating how IT can support the initially informal process of Opportunity Management and how a sales clerk and their manager handle their leads, contacts and opportunities. The Vide system will allow the sales clerk and manager to draw informal models of their process and support the different IT staff throughout the process of application development.

In addition to exploring a specific business scenario we are integrating the toolset in a number of industrial solutions such as Softeam's Objecteering, SAP's Netweaver and Rodan's OfficeObjects Workflow platform.

Achievements

The projects main results to date include:

- Specification and design of the components and the integrated Vide toolset.
- A development methodology
- Early implementations of the components and a first prototype of a restricted feature integrated toolset.
- Standards: significant influential effect on the new 4th generation object-oriented database standard by OMG;
- A list of publications and dissemination activities are available from the project website <http://www.vide-ist.eu/>

By the end of the project we will have a fully integrated and evaluated toolset, for public dissemination with eLearning tutorials. Some of the software developed will be available for download from the project website at <http://www.vide-ist.eu/>.



title

Visualise all model driven programming

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type of project

Specific Targeted Research Project

contact point

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project website and partner list

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